related Parliamentary Standing Committee on Science and Technology, Environment and Forests in its 127th Report.

STATEMENT BY MINISTER

Status of implementation of recommendations made by department-related Parliamentary Standing Committee on Science and Technology, Environment and Forests in its 127th report.

THE MINISTER OF STATE OF THE MINISTRY OF SCIENCE AND TECHNOLOGY AND MINISTER OF STATE OF THE DEPARTMENT OF OCEAN DEVELOPMENT (SHRI KAPIL SIBAL): Sir, I am making this statement under the direction issued by hon. Chairman in pursuance of the provisions of Rule 266 of the Rules of Procedure and Conduct of Business in the Council of States *vide* Rajya Sabha Bulletin, Part II, dated the 28th September, 2004, to inform this esteemed House about the status of the implementation of the recommendations made by the Department-related Parliamentary Standing Committee on Science and Technology, Environment and Forests in its 127th Report. This Report relates to the consideration of the detailed Demands for Grants (2004-05) of the Department of Biotechnology (DBT). The Committee reviewed the progress made by DBT during the reporting period and considered the Demands for Grants (2004-05), in detail. The Department made an oral presentation before the Committee during its meeting on 9th August, 2004.

The Committee, while reviewing the working and considering the detailed Demands for Grants of DBT, analysed the Demands for Grants with reference to the aims, objectives and achievements of the Department and presented the 127th Report thereon to the House on the 18th August, 2004. The Report contains 16 recommendations, in all, which were advisory in nature. The recommendations were received in DBT in September, 2004. The Department has furnished a detailed Action Taken Note on these recommendations to the Committee, in December, 2004. The current status on the action taken is given in the appended Annexure.

Sir, I beg to leave to place both the Statement as well as the Annexure on the Table of the House. The Statement and the Annexure is given as under:

Recommendations of Parliamentary Standing Committee	Action taken as per the Action Taken Report	Current Status on Action Taken
Point 3, Para 20 - Stem Cell and Tissue Engineering The Committee is aware of the fact that researches in Embryonic Stem cell involve a lot of hindrances due to infant stage of development of knowledge in this field. However, this infant stage of research in fact urges the Committee to strongly recommend that Department of Biotechnology should initiate Comprehensive Research Programme to bring up coming development in . this sphere at par with the international standard and explore for a more wider application of embryonic stem cell research so that some concrete achievement could be made in critical areas. The Committee feels that in order to move ahead in the field, the DBT needs to work on both embryonic stem cell and adult derived	Department of Biotechnology has laid major thrust in the area of stem cell research. A separate Task Force has been set up by the Department to expand this area and to deal with the programmes on stem cells. The Department has also identified priority areas of research both for embryonic and adult stem cells based on the inputs /suggestions received from the experts and detailed discussion held during the Task Force. These areas have been mainly categorized into Basic research, Applied research, Human Resource Development and Facility. In order to explore wider applications of stem cell research, efforts are being made to form city based clusters in the country for stem cell research by involving basic researchers and clinicians. In addition, the Department has also	Four meetings have been scheduled during April - May, 2005 to discuss biomaterials, biosensors, bioinstrumentation and tissue engineering for creating Road Map of bioengineering.

stem cell for more functional applications in the field of Biotechnology. The Committee has been given to understand that researches in the field of Tissue Engineering will deliver new medical techniques and devices, including small blood vessel replacement, bone, tendon, ligament and cartilage repair, healing of skin wounds and advances in nerve re - generation. It will also lead to cellular based therapies for de. generative problems in muscles for cardiac re-generation in the heart and in treating de-generative conditions in the brain. In view of this, the Committee strongly recommends for the in-depth research in the field.	supported a number of programmes on hematopoitic, limbal, liver and neural stem cells and to establish stem cell lines. The Department has organised a brainstorming session on bioengineering to discuss the identified key areas i.e. tissue engineering and stem cells; biomaterials for drug delivery; biomedical instrumentation and biosensors by inviting scientists, clinicians and industry representatives. It has been felt that the involvement of clinicians and industry at appropriate stage is equally important as they are the end users of the developed products. The issues like developing linkages among the institutes for research in these areas; mechanisms for national / international networking; Human Resource Development (HRD); R&D programmes; infrastructure strengthening etc. were discussed during the brainstorming. The action will be initiated as per the recommendation of the brainstorming on bioengineering.	

Point 12, Para 52 Infrastructure Facilities Providing infrastructure facilities for the promotion of Biotechnology is an ongoing process of the Government of India for the benefit of various organizations including small, medium and large industrial entrepreneurs. The Committee hopes that the Department should provide need based inputs for facilitating mplementation of proposals of establishing different kind of facilities like Biotechnology Incubators, Downstream processing facilities, Pilot Plant facilities, Tissue Culture hardening facilities, etc. at biotech Parks created by the States as and when required. The Committee is strongly of the view that the Department should approach the Planning Commission for enhancing the allocation for establishment of Bio-parks in strategic areas in the country.	The Department has been facilitating implementation of proposals for establishing different facilities such as Biotechnology Incubators, Downstream Processing Facilities, Pilot Plants; Tissue Culture Hardening facilities, etc. by various States at Biotech Parks, by providing scientific and technical inputs apart from identifying resource persons. The Department has approached the Planning Commission, as recommended by the PSC for additional grants to support more project proposals in addition to the two approved earlier for Lucknow and Hyderabad and an additional grant of Rs.12 crores has been approved for the current financial year for the scheme "Assistance for Technology Incubator, Pilot Projects, Biotechnology Parks, Biotech Development Fund". The Department is in discussion with the Planning Commission for necessary approval for support to more than two Parks, as stipulated by them in the EFC	The Department has got approval from the Planning Commission to support more than two Biotech Parks. After necessary approval by EFC, four parks have been sanctioned in Karnataka, Kerala, Punjab and Himachal Pradesh.

Point 15, Para 59 Animal Biotechnology The Committee would like to suggest that a section of research in Biotechnology should concentrate on the breeding of special cows that naturally produce low-fat milk that boost immune System which may be termed as 'green cow' and which are specifically engineered to produce less methane to help stem global warming. Green cows generally deliver low fat milk that boosts immune system, improve lactose utilization and relive diarrhoea. Recent advances in Biotechnology as what the Committee has been given to understand have identified gene for milk fat synthesis that may one day allow scientists to selectively breed cows that naturally produce low fat milk. This will also considerably improve the efficiency of the milk	The concept of the designer cows and green cows is one among the many promises of genetic engineering and recombinant DNA technology. Producing animal products that selectively suits human beings with the specific demand is one of the goal. Department of Biotechnology has already supported a programme on development/ standardization of transgenic technology in mice model and more than 20 lines of transgenic mice have been developed. Efforts are on to develop similar programme in cattle keeping in view the need of the country. Embryo transfer technology is now well established in cattle, buffalo, goat, camel etc. through the support • of the Department and the technology can be used to multiply designer/ elite animal at a faster rate. A major cattle breeding programme . using DNA markers an embryo technology is on the anvil. Selective use of creating knockdown livestock for undesirable traits without	A project entitled "Rumen microbial biomass synthesis and fibredigestion covering feed factor affecting partitioning of fermentable organic matter between microbial biomass and fermentation waste products" has already been implemented at UAS, Bangalore. In this project, collection of inoculum from the rumen and anaerobic processing prior to incubation with feed samples have been standardized. Standards have been

production of the cows. Since the green cows are environmentally cleaner cows they produce less significant amount of methane, which is a major contributor to green house effect, in the atmosphere, second, only to C02 which generally contributes to global warming. Green cow can alter cattle digestion either by removing micro-organisms from their stomachs, that produce methane or by creating micro-organisms that can produce metabolic products other than methane. The Committee also feels that if DBT makes a concentration on such type of research, the emphasis on food safety will increase and by increasing the body's defence mechanism, a great section of population could be saved from constant attacks of common incurable diseases.	affecting the base genetic make up of livestock population is one of the most important thrust area for which programmes are being initiated. This Department has also initiated a programme on exploration of unconventional rumen microflora from wild ungulates. Its recolonisation in the rumen of domestic livestock has already been done. A 1200 lit. capacity reactor has been designed for solid state fermentation and associated processes for large scale bioconversion of lignocellulose residues to animal feed. Programmes have also been supported for selection and improvement of lignin degrading microorganism and Genetic manipulation of microbes for enhanced ligninase expression. Efforts would be made to develop specific programme on identifying microorganism or to develop recombinant microorganism that can produce useful metabolic products other than methane.	developed using finger millet strant and compound feed as the substrates with a view to monitoring the variations in fermentation sectirity of the rumen microbial inoculum.

Point 16, Para 60 Bio-security The Committee recommends that the Department of Bio technology should take steps to ensure bio-security without hampering legitimate research or free flow of information in the field biotechnology. First, there must be an increased awareness of risk of Bio terrorism among scientists and scientific leaders. In order to augment awareness about security, the Committee would like to suggest for arrangement of training and accreditation programmes that would increase considerable awareness and stimulate better communications between scientific and national security communities. The Committee feels that any Bio security policies must take a "bottom up' approach by including direct involvement of working scientists. The security provisions should work	The recommendations of the Committee that the Department of Biotechnology should take steps to ensure bio—security without hampering legitimate research free flow of information in the field of biotechnology have been taken note of and efforts would be made to increase the awareness of risk of bio-terrorism amongst scientists and scientific leaders. The whole [ssue of bio-security would be looked into from the viewpoint of bio-safety, bio security and information dissemination and if necessary Standard Operating Procedures would be developed. The "Department would set up a small group, which would look into the details of the recommendations of the Parliamentary Standing Committee and suggest ways for implementation	The Department has set up a small group which would look into the details of the recommendat-ions of the Parliamentary Standing Committee and suggest ways for implementations

hand in hand with the progress in biological research. It is the categorized opinion of the Committee that the strategies that block the publication of certain research materials would deter the free flow of information, impede careers of scientists in the field of bio technology and discourage new incumbents in entering the field of research in Bio-Technology. The guidelines should, therefore, be developed to allow researchers to publish their work without providing information that would be useful to Bio Terrorists. Universities and other scientific institutions as what the Committee feels should develop the procedures 'to monitor scientific activities and design fool proof action plan to prevent any strategic information leakage relating to Bio Technology to bio terrorists who would in turn adversely utilize these information for		

creating Bio-Terrorism thereby throwing considerable threat on the very existence of human communities by waging biological warfare. Biological weapons pose a strategic threat mirrored by no other form of attack other than nuclear weapons. The Committee feels that as there is no simple solution to bio security, the Department of Bio Technology must construct a system of checks and balances needed to assure that the growing power of life sciences is only used to protect life and not to destroy it.		

GOVERNMENT BILLS - *Contd.*

The Government of Union Territories and the Government of National Capital Territory of Delhi (Amendment) Bill, 2005

SHRI V. NARAYANASAMY (Pondicherry): Mr. Deputy Chairman, Sir, I rise to support this Bill.

MR. DEPUTY CHAIRMAN: What is there in this small Bill?

SHRI V. NARAYANASAMY: Sir, there are so many things in this Bill on which I would like to speak. Thank you very much for giving me an opportunity to speak on the Government of Union Territories and the Government of National Capital Territory of Delhi (Amendment) pill, 2005.